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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR			ATTORNEY DOCKET NO.	
08/992.767	12/17/97	YOKOYAMA		Н	NEC-	-19654
— MM42/0208			\neg	EXAMINER		
HAYES SOLOWAY HENNESSEY GROSSMAN				WILLE,D		
& HAGE				ART U	TIN	PAPER NUMBER
175 CANAL STREET MANCHESTER NH 03101				2814		
				DATE MAIL		/08/00

Please find below and/or attached an Office communication concerning this application r pr c eding.

Commissioner of Patents and Trademarks





Office Action Summary

Application No. 08/992,767 Applicant(s)

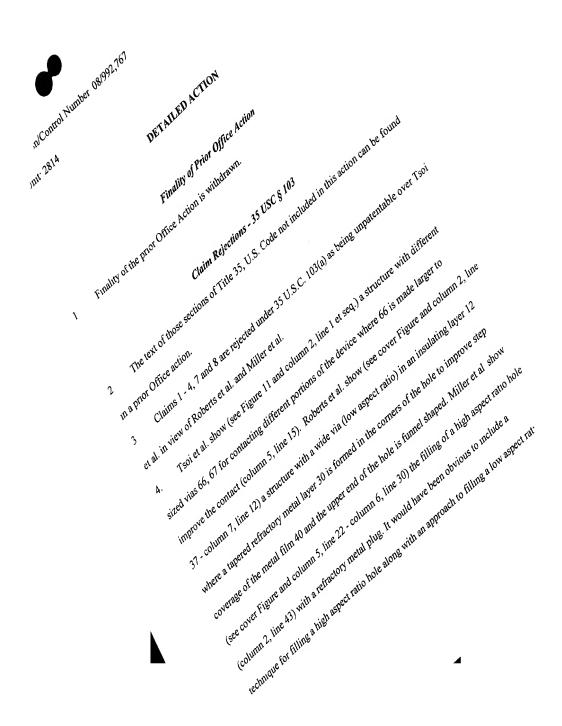
Examiner

Douglas Wille

Group Art Unit 2814



X Responsive to communication(s) filed on Dec 27, 1999	·				
☐ This action is FINAL .					
☐ Since this application is in condition for allowance except for fin accordance with the practice under <i>Ex parte Quayle</i> , 1935 (ormal matters, prosecution as to the merits is closed C.D. 11; 453 O.G. 213.				
A shortened statutory period for response to this action is set to e is longer, from the mailing date of this communication. Failure to application to become abandoned. (35 U.S.C. § 133). Extension 37 CFR 1.136(a).	respond within the period for response will cause the				
Disposition of Claims					
X Claim(s) 1-10	is/are pending in the application.				
Of the above, claim(s)	is/are withdrawn from consideration.				
Claim(s)					
X Claim(s) 1-10					
☐ Claim(s)					
☐ Claims					
Application Papers					
☐ See the attached Notice of Draftsperson's Patent Drawing F	Review, PTO-948.				
☐ The drawing(s) filed on is/are objected	to by the Examiner.				
☐ The proposed drawing correction, filed on	is 🗔 approved 🖂 disapproved.				
$\hfill\Box$ The specification is objected to by the Examiner.					
☐ The oath or declaration is objected to by the Examiner.					
Priority under 35 U.S.C. § 119					
\square Acknowledgement is made of a claim for foreign priority un					
☐ All ☐ Some* ☐ None of the CERTIFIED copies of the	ne priority documents have been				
☐ received.					
received in Application No. (Series Code/Serial Number					
☐ received in this national stage application from the Int					
*Certified copies not received: Acknowledgement is made of a claim for domestic priority to					
	muer 33 0.3.C. 3 119(e).				
Attachment(s) X Notice of References Cited, PTO-892					
☐ Information Disclosure Statement(s), PTO-1449, Paper No(s	1				
☐ Interview Summary, PTO-413	·				
☐ Notice of Draftsperson's Patent Drawing Review, PTO-948					
☐ Notice of Informal Patent Application, PTO-152					
SEE OFFICE ACTION ON THE	FOLLOWING PAGES				





Application/Control Number: 08/992,767

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hole to provide a technique for providing both sized vias in a regime where the hole size is small enough to cause concern.

- Claims 1 4, 7 and 8, in so far as they are understood, are rejected under 35
 U.S.C. 103(a) as being unpatentable over Tsoi et al. in view of McDavid and Miller et al.
- 6. Tsoi et al. show (see Figure 11 and column 2, line 1 et seq.) a structure with different sized vias for contacting different portions of the device where 66 is made larger to improve the contact (column 5, line 15). McDavid shows (see cover Figure and column 2, line 19 line 61) a structure with a wide via (low aspect ratio) in an insulating layer 21 where a tapered refractory metal layer 13 is formed in the corners of the hole to improve step coverage of the metal film 10 and the upper end of the hole is funnel shaped. Miller et al. show (see cover Figure and column 5, line 22 column 6, line 30) the filling of a high aspect ratio hole (column 2, line 43) with a refractory metal plug. It would have been obvious to include a technique for filling a high aspect ratio hole along with an approach to filling a low aspect ratio hole to provide a technique for providing both sized vias in a regime where the hole size is small enough to cause concern.
- 7. Claims 5, 6, 9 and 10, in so far as they are understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsoi et al., McDavid and Roberts et al. in view of Miller et al.
- 8. McDavid shows a refractory layer which is high in form and Roberts et al. show a refractory layer that is low in form. Since both show a useful structure it would have been obvious to use any form in-between the two.

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Conclusions

- 9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A. Wille whose telephone number is (703) 308-4949.
- 10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose number is (703) 308-0956.

Olik Chaudhuri

Supervisory Patent Examiner

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DAW Dofee

January 31, 2000